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**U.S. SPACE COMMAND YEAR 2000 ISSUES**

**Report Number 98-188**

**August 18, 1998**

**Office of the Inspector General  
Department of Defense**

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### **Acronyms**

ITW/AA	Integrated Tactical Warning/Attack Assessment
NORAD	North American Aerospace Defense Command
SPACECOM	U.S. Space Command
Y2K	Year 2000



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202

August 18, 1998

MEMORANDUM FOR COMMANDER IN CHIEF, U.S. SPACE COMMAND  
DIRECTOR, JOINT STAFF

SUBJECT: Audit Report on U.S. Space Command Year 2000 Issues  
(Report No. 98-188)

We are providing this audit report for your information and use.

We considered management comments on a draft of this report in preparing the final report. Management comments conformed to DoD Directive 7650.3; therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Richard B. Vasquez at (703) 604-9094 (DSN 664-9094) <email rbvasquez@dodig.osd.mil>, Ms. Dianna J. Pearson at (703) 604-9063 (DSN 664-9063) <email djpearson@dodig.osd.mil>, or Ms. Mary Lu Ugone at (703) 604-9049 (DSN 664-9049) <email mlugone@dodig.osd.mil>. See Appendix B for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman  
Assistant Inspector General  
for Auditing

## **Office of the Inspector General, DoD**

**Report No. 98-188**

(Project No. 8AS-0006.02)

**August 18, 1998**

### **U.S. Space Command Year 2000 Issues**

#### **Executive Summary**

**Introduction.** This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. For a listing of audit projects addressing the issue, see the year 2000 webpage on the IGnet at < <http://www.ignet.gov> > .

Information technology systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve electronic storage and reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of that ambiguity, computers and associated systems and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years after 1999.

**Audit Objectives.** The overall audit objective was to evaluate the status of the U.S. Space Command's progress in resolving its year 2000 computing issue. Our audit focused on the following year 2000 issues: leadership support and awareness, management and resolution strategy, system assessments, prioritization, system interfaces, testing, risk analysis and contingency planning, and support received from responsible Service executive agents.

**Audit Results.** The U.S. Space Command and component commands have taken actions to address the year 2000 problem, but not completed all the actions necessary to minimize the adverse impact of Y2K date processing on its mission and its mission-critical systems. Unless U.S. Space Command, along with the Joint Staff, the Services, and the Defense agencies make further progress on mitigating Y2K risks, U.S. Space Command may be unable to fully execute its mission without undue disruption. See Part I for details of the audit results.

**Summary of Recommendations.** We recommend that the Commander in Chief, U.S. Space Command, develop a written year 2000 management plan that includes a strategy for resolving the year 2000 problem; identify the year 2000 issue as a readiness issue and include functional directorates in future warfighter year 2000 conferences hosted by the Joint Staff; develop a complete list of mission-critical systems that includes U.S. Space Command managed systems, U.S. Space Command supporting systems, and systems based on commercial off-the-shelf and Government off-the-shelf products; complete the identification of interfaces and prepare written interface agreements for mission-critical systems that U.S. Space Command manages; develop contingency plans for mission-critical systems that U.S. Space Command manages and develop operational contingency plans for mission areas; develop comprehensive and complete

test plans to show how U.S. Space Command managed systems will be tested and deemed compliant; coordinate year 2000 solutions and contingency plans with U.S. Space Command component commands; and use selected command and joint exercises for year 2000 operational evaluation in FYs 1998 and 1999. We recommend that the Director, Joint Staff, include all functional directorates and component commands in the warfighter year 2000 conference hosted by the Joint Staff.

**Management Comments.** The U.S. Space Command and the Joint Staff concurred with the recommendations. See Part I for a summary of management comments and Part III for the complete text of the comments.

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## **Part I - Audit Results**

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## Audit Background

The year 2000 (Y2K) problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions before, on, or after the turn of the century. The Y2K problem is rooted in the way that automated information systems record and compute dates. For the past several decades, systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve on electronic data storage and to reduce operating costs. With the two-digit format, however, the Y2K is indistinguishable from 1900. As a result of the ambiguity, computers and associated system and application programs that use dates to calculate, compare, or sort could generate incorrect results when working with years following 1999. Calculation of Y2K dates is further complicated because the Y2K is a leap year, the first century leap year since 1600. The computer systems and applications must also recognize February 29, 2000, as a valid date.

Because of the potential failure of computers to run or function throughout the Government, the President issued an Executive Order, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the Y2K problem and that the head of each agency ensure that efforts to address the Y2K problem receive the highest priority attention in the agency. In addition, the General Accounting Office has designated resolution of the Y2K problem as a high-risk area, and DoD recognized the Y2K issue as a material management control weakness area in the FY 1997 Annual Statement of Assurance.

**DoD Y2K Management Strategy.** In his role as the DoD Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan) in April 1997. The DoD Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, fixing, or retiring systems, and monitoring progress. The DoD Management Plan states that the DoD Chief Information Officer has overall responsibility for overseeing the DoD solution to the Y2K problem. Also, the DoD Management Plan makes the DoD Components responsible for implementing the five-phase Y2K management process. The DoD Management Plan includes a description of the five-phase Y2K management process. The DoD Management Plan, For Signature Draft Version 2.0, June 1998, accelerates the target completion dates for the renovation, validation, and implementation phases. The new target completion date for implementation of mission-critical systems is December 31, 1998.

In a January 20, 1998, memorandum for the heads of executive departments and agencies, the Office of Management and Budget established a new target date of March 1999 for implementing all corrective actions to all systems. The new target completion dates are September 1998 for the renovation phase and January 1999 for the validation phase.



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**The Joint Chiefs of Staff.** The Chairman of the Joint Chiefs of Staff is the principal military advisor to the President, the Secretary of Defense, and the National Security Council. The Joint Chiefs of Staff have no executive authority to command the combatant forces. The Secretaries of the Military Departments assign all forces under their jurisdiction to the unified commands to perform missions assigned to those commands.

**The Joint Staff.** The Joint Staff assists the Chairman of the Joint Chiefs of Staff with unified strategic direction of the combatant forces, unified operation of the combatant commands, and integration into an efficient team of land, naval, and air forces. The Joint Staff Director, Command, Control, Communications, and Computer Systems (J6), has been designated by the Chairman of the Joint Chiefs of Staff to oversee the unified commands and Joint Staff's implementation of the DoD Management Plan.

**Year 2000 Action Plan.** The Joint Staff Year 2000 Action Plan, March 1998, provides the unified commands and Joint Staff directorates with the corporate strategy and management approach for addressing the Y2K problem. The action plan uses the accelerated target completion dates for the renovation, validation, and implementation phases. The action plan states that the unified commands should target December 31, 1998, for completion of all Y2K efforts.

**U.S. Space Command.** The U.S. Space Command (SPACECOM) is one of the nine unified commands of the Department of Defense. Although the Department of Defense began its first space initiatives during the 1950s on the basis of strengthening national security, SPACECOM was activated on September 23, 1985, when the Joint Chiefs of Staff confirmed the ever-increasing value of military space systems. The mission of SPACECOM is to conduct joint space operations such as Space Forces Support, Space Force Enhancement, Space Force Application, and Space Force Control. In addition, SPACECOM is responsible for the ballistic missile defense of North America. The SPACECOM also supports the other unified commands by providing warning of ballistic missile attack and an assured access to and unimpeded operation in space. The SPACECOM performs the missions primarily through its three Service component commands, which are the Army Space Command, the Naval Space Command, and the Air Force Space Command.

Among the most vital customers of SPACECOM is the North American Aerospace Defense Command (NORAD). The NORAD is a bi-national U.S. and Canadian command charged with safeguarding the sovereign airspace of North America, contributing to deterrence, and providing effective air defense should deterrence fail. The SPACECOM supports NORAD by providing missile warning, space control, communication, and intelligence support to the combined NORAD/SPACECOM Command Center in the Cheyenne Mountain Operations Center. The center would sound the first alarm of an attack against North America by air or through space.

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## **Audit Objectives**

The overall audit objective was to evaluate the status of the progress of SPACECOM in resolving its Y2K computing issue. Our audit focused on the following Y2K issues: leadership support and awareness, management and resolution strategy, system assessments, prioritization, system interfaces, testing, risk analysis and contingency planning, and support received from responsible Service executive agents. We did not review the management control program related to the overall audit objective because DoD recognizes the Y2K issue as a material management control weakness area in the FY 1997 Annual Statement of Assurance. See Appendix A for a discussion of the audit scope, methodology, and prior audit coverage.

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## **Status of the U.S. Space Command Year 2000 Program**

The SPACECOM and component commands have recognized the importance of the Y2K issue and have taken actions to address the Y2K problem. However, SPACECOM has not completed all the actions necessary to minimize the adverse impact of Y2K date processing on its mission and its mission-critical systems. More needs to be done in the following areas:

- developing a written SPACECOM Y2K management plan that includes a strategy for resolving the Y2K problem and the role of the Air Force Space Command in the SPACECOM program;
- establishing Y2K focal points within all the functional directorates and requiring all functional directorates to participate in the Y2K program, as part of the SPACECOM Y2K management plan;
- identifying Y2K as a readiness issue rather than only as an information technology issue;
- identifying mission-critical systems, which include both systems that SPACECOM manages and systems that Services or other organizations manage;
- completing the identification of interfaces and preparing written interface agreements for mission-critical systems that SPACECOM manages;
- developing contingency plans for systems that SPACECOM manages and developing operational contingency plans for mission areas;
- developing comprehensive and complete test plans to show how SPACECOM-managed systems will be tested and deemed compliant;
- coordinating Y2K solutions and contingency plans with component commands to minimize impact on mission; and
- using selected command and joint exercises to test Y2K scenarios and contingency plans in an operational environment when possible.

Unless SPACECOM, along with the Joint Staff, the Services, and the Defense agencies make further progress on mitigating Y2K risks, SPACECOM may be unable to fully execute its mission without undue disruption.

## **Actions That SPACECOM and Its Component Commands Took to Address the Year 2000 Problem**

The SPACECOM has recognized the importance of the Y2K issue and has taken actions to address the Y2K problem. For example, SPACECOM established a Y2K program manager; the Intelligence Directorate developed a Y2K program; and the Command, Control, Communications, and Computers Systems Directorate initiated limited Y2K compliance testing. The component commands also developed Y2K programs. The Air Force Space Command owns about 95 percent of the systems that SPACECOM uses.

**Specific Actions of SPACECOM.** The SPACECOM Y2K program manager had been working on Y2K issues for more than 2 years. In addition, the Intelligence Directorate developed the NORAD-SPACECOM Intelligence System Y2K Transition Plan, August 29, 1997, which describes the NORAD-SPACECOM process for planning and managing the transition of the NORAD-SPACECOM Intelligence System into the year 2000. The plan will support the SPACECOM technical planning and management, budgetary programming, and technical coordination for all NORAD-SPACECOM intelligence systems. Further, the Command, Control, Communications, and Computers Systems Directorate performed limited Y2K compliance testing on new computer and software products before placing the products in use.

**Specific Actions of the Air Force Space Command.** The Air Force Space Command developed the Air Force Space Y2K Program Management Plan, November 18, 1996, which outlines the approach that the Air Force Space Command is taking to resolve the Y2K problem. The Air Force Space Command plan is based on the plan established by the Air Force Communications Agency and follows the DoD Management Plan. In addition, the Air Force Space Command identified key personnel and program managers for the functional directorates, wings, and other units.

The majority of the Air Force Space Command mission systems is in the Integrated Tactical Warning/Attack Assessment (ITW/AA) network. The systems either obtain data, such as radars or other sensors, or transmit data throughout NORAD/SPACECOM and are therefore considered mission-critical or mission-essential systems. The ITW/AA Y2K Working Group conducted an impact assessment in FY 1996 for the ITW/AA and its data users. Based on results, the working group developed a strategy to ensure the survival of systems in the ITW/AA.

**Specific Actions of the Naval Space Command.** The Naval Space Command established a Y2K team and coordination staff to develop a Y2K management plan and systems inventory. The inventory shows subject-matter-expert personnel for each system, a Y2K representative for each system, interfaces, and a listing of memorandums of agreement required for each interface.

The Naval Space Command adopted a written Y2K Renovation Plan on March 11, 1998. The Naval Space Command recognizes that its projected

completion date of April 30, 1999, exceeds the latest DoD Y2K compliance timeline date of December 31, 1998, for mission-critical systems and has identified the shortfall to Naval Space Command management.

**Specific Actions of the Army Space Forward Command.** The Army Space Forward Command, a unit of the Army Space Command, is not the owner of the operational systems that it uses. However, the Army Space Forward Command is increasing its level of Y2K awareness and active interest in assessing the status of those systems. The Army Space Forward Command is now working with the Military Satellite program office and Defense Information Systems Agency to implement some required Y2K corrections.

The Army Space Forward Command has established Y2K focal points and has tasked them to identify all systems possibly affected by the Y2K problem. While the Army Space Forward Command did not have a written Y2K management plan, database, or other mechanism for tracking Y2K compliance progress for its operational systems, the Army Space Forward Command was compiling a list of systems.

## **Further Actions Needed to Minimize Y2K Disruptions**

While we consider the actions taken to date by SPACECOM and the component commands as positive, SPACECOM has not yet fully addressed several critical issues. To ensure that its mission-critical systems will successfully operate at the year 2000 and beyond, SPACECOM, including its component commands and functional directorates, must further address the following critical issues.

**Management Plan.** The SPACECOM has not published a command Y2K management plan that includes a strategy for resolving the Y2K problem. Although the Intelligence Directorate has a written Y2K Transition Plan that is specific to the intelligence systems, it does not provide an overall SPACECOM strategy. However, SPACECOM could use the Intelligence Directorate Y2K Transition Plan as a basis for developing the SPACECOM management plan. At a minimum, the SPACECOM plan should include the following:

- guidance for the DoD Management Plan and a requirement to update the SPACECOM plan based on changes to the DoD Management Plan,
- a SPACECOM strategy for resolving Y2K problems,
- the role of the Air Force Space Command in the SPACECOM Y2K program,
- Y2K focal points for all functional directorates, and
- a requirement for participation of functional directorates in the Y2K program and identification of mission-critical systems.

## Status of the U.S. Space Command Year 2000 Program

**Role of the Air Force Space Command in the SPACECOM Y2K Program.** The SPACECOM officials stated that SPACECOM had delegated a significant portion of Y2K Program Management Authority to the Air Force Space Command because 95 percent of the systems that they use are owned by the Air Force Space Command. However, SPACECOM provided no written documentation of the delegation. Further, we could not verify the accuracy of the percentage of Air Force Space Command systems that SPACECOM uses because SPACECOM had not prepared a Command list of mission-critical systems.

**Y2K Focal Points.** The SPACECOM had not established and documented focal points within all functional directorates. Establishing focal points should promote awareness and involvement in developing and executing the SPACECOM Y2K program strategy. Also, focal points should query their directorates for mission-critical systems used and assist the SPACECOM Y2K Program Manager in preparing the Command list of mission-critical systems and in identifying system interfaces.

**Functional Directorate Participation.** Because SPACECOM had not established and documented Y2K focal points within all functional directorates, we found evidence that not all the directorates were fully involved in the Y2K program. The functional directorates need to assist in identifying mission-critical systems and system interfaces used if SPACECOM expects to identify a Command list of mission-critical systems.

**Y2K as a Readiness Issue.** The Y2K issue is more than an information technology problem and could affect operations and force readiness. Unless SPACECOM, as well as other unified commands, expands the perspective that the Y2K issue only impacts computers, other functional directorates and component commands may not view Y2K as a serious warfighter issue. The view of Y2K as only an information technology problem is evidenced by the lack of other functional directorates participating in the August 1998 warfighter Y2K conference hosted by the Joint Staff. The SPACECOM sent only a J-6 representative.

**List of Mission-Critical Systems.** The SPACECOM had not developed a complete list of mission-critical systems, including both systems that SPACECOM manages and systems that Services or other organizations manage. Therefore, we could not be sure that SPACECOM had identified all systems used. As of March 1998, SPACECOM had identified six mission-critical systems. The six systems represent the Intelligence Directorate, which is only one of the SPACECOM functional directorates. Also, the six systems are all SPACECOM-managed systems. The SPACECOM, including the functional directorates, need to develop a complete list of mission-critical systems. The mission-critical systems list should show SPACECOM-managed systems, SPACECOM supporting systems, and systems that are based on commercial off-the-shelf and Government off-the-shelf products. The SPACECOM, with the help of its component commands and the functional directorates, needs to identify mission-critical supporting systems because the appropriate executive agents need to be aware of the systems that are critical to the SPACECOM mission.

The Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) has developed a DoD Y2K database. However, the decision to make the DoD Y2K database on-line is being discussed. The Joint Staff has made available an extract of the DoD Y2K database on the SIPRNET.

**Interfaces and Written Interface Agreements.** Because SPACECOM had not identified a complete list of mission-critical systems, SPACECOM did not finish identifying system interfaces or preparing written interface agreements for mission-critical systems that SPACECOM manages. Although SPACECOM had identified interfaces for the intelligence systems, it had not developed written interface agreements specifying the method of data exchanges, the entity responsible for Y2K solutions, and completion dates for the solutions. As a result, SPACECOM is unable to determine the status of those interfaces that may impact the SPACECOM mission. Interfaces are critical to the Y2K effort because they have the potential to introduce or propagate errors, or both, from one DoD Component to another.

In addition to known interfaces, SPACECOM exchanges data with systems of allied and coalition partners, as well as other Federal agencies. Those systems are also vulnerable to Y2K problems, which could introduce or propagate errors into SPACECOM systems. Timely and complete information on all system interfaces that may be affected by Y2K changes is critical to the success of the Y2K compliance program of SPACECOM.

The DoD Management Plan states that components need to determine the dependency links between internal and external systems; determine the dependency links between core mission areas, processes, and all data exchange entities; and provide for date and data format conversions where necessary. A validation process is necessary to ensure compliance. The sample Y2K compliance checklist in the DoD Management Plan states that DoD Components and each interface partner should negotiate an agreement dealing with Y2K issues. The DoD Components and their interface partners should discuss and verify that they have implemented consistent Y2K corrections for data passed between the systems. The SPACECOM needs to prepare written interface agreements for mission-critical systems that SPACECOM manages to reduce the risk of discovering too late in the Y2K effort that an interfacing system will not be able to accommodate Y2K changes. The interface agreements should provide for the same types of information as in the DoD Management Plan sample Y2K compliance checklist.

**Contingency Planning.** The SPACECOM had not developed contingency plans for the six SPACECOM-managed intelligence systems. According to the DoD Management Plan, DoD Components should develop realistic contingency plans, including the development and activation of manual or contract procedures, to ensure the continuity of core processes. When SPACECOM completes the identification of systems, SPACECOM will also have to determine the need for contingency plans based on the complete list of systems.

In addition to the managed systems' contingency plans, SPACECOM should review and assess contingency plans for mission-critical systems that other

## Status of the U.S. Space Command Year 2000 Program

organizations own, as they become available, and develop operational contingency plans as needed for those mission areas. The Joint Chiefs of Staff Year 2000 Action Plan states that unified commands are not expected to know detailed information about the mission-critical systems provided by the Services and Defense agencies. However, the unified commands must conduct sufficient planning and establish alternate procedures to successfully complete an organization's mission while the system's program managers and technical staff make necessary Y2K corrections. The Joint Chiefs of Staff Year 2000 Action Plan provides guidance on developing both operational and system contingency plans.

**Testing Plans.** The SPACECOM had not developed comprehensive and complete test plans to show how SPACECOM-managed systems will be tested and deemed Y2K compliant. The DoD Management Plan states that DoD Components need an extensive period of time to adequately validate and test converted or replaced systems for Y2K compliance. DoD Components not only must test for Y2K compliance of individual applications, but also must test the complex interactions between sources of converted or replaced computer platforms, operating systems, utilities, applications, databases, and interfaces. All converted or replaced system components introduced during the renovation phase must be thoroughly validated and tested to uncover errors, validate Y2K compliance, and verify operational readiness. Inspector General, DoD, Report No. 98-129, "U.S. Special Operations Command Year 2000 Issues," May 8, 1998, recommended that the Joint Staff assist the unified commands in testing systems and applications that are common to the unified commands.

The Joint Interoperability Test Command provides general assistance in Y2K resolution that includes test planning, test case development, and solution recommendations. In addition, the Joint Interoperability Test Command can provide specific assistance in support of a system to include analysis of hardware platforms and software application packages, development and execution of a Y2K test plan, recommendations to resolve Y2K impacts, and implementation of resolution recommendations.

**Component Commands.** The SPACECOM had limited visibility over its component commands' Y2K problems and solutions, except for interfaces, because the SPACECOM component commands report systems through Military Departments. As a result, SPACECOM did not know how the Y2K issues will impact the overall mission of SPACECOM. Because the SPACECOM mission will involve the component commands, the resolution strategy and implementation of that strategy is a responsibility of SPACECOM and its component commands. Therefore, SPACECOM should coordinate Y2K solutions and contingency plans with the SPACECOM component commands. In August 1998, the Secretary of Defense issued a memorandum that requires each of the Unified Commanders-in-Chief to review the status of Y2K implementation within his command and the command of subordinate components. The Unified Commanders-in-Chief are required to report the status of Y2K implementation to the Secretary of Defense on a quarterly basis.



## **Use of Selected Command and Joint Exercises for Y2K Operational Evaluation**

Because of time constraints posed by Y2K issues, using selected command and joint exercises to test Y2K scenarios may assist SPACECOM in making further progress to identify and resolve Y2K problems. Further, use of selected exercises, the development of Space mission readiness assessment, or both, would provide SPACECOM and the unified commands with the opportunity to correct Y2K interoperability issues because of system interdependencies and interfaces or would provide alternative measures in the event that resolution of Y2K issues is not timely. Inspector General, DoD, Report No. 98-173, "U.S. Central Command Year 2000 Issues," July 2, 1998, and Inspector General, DoD, Report No. 98-129, "U.S. Special Operations Command Year 2000 Issues," May 8, 1998, recommended that the Joint Staff integrate year 2000 scenarios into operational requirements in joint exercises for the purposes of determining the extent of potential year 2000 impact on continuity of warfighter operations.

The House bill to authorize appropriations for FY 1999 for the Department of Defense, H.R. 3616, proposes that the Secretary of Defense submit to Congress a report containing a plan to include a simulated Y2K as part of military exercises conducted from January 1, 1999 to September 30, 1999. The plan shall include military exercises conducted under the Chairman of the Joint Chiefs of Staff Exercise Program. Additionally, the plan is to cover systems excluded from the exercise and provide an explanation of how the military exercise will use an excluded system's Y2K contingency plan.

The Secretary of Defense has asked the Chairman of the Joint Chiefs of Staff to develop a Joint Y2K operational evaluation program and to provide the plans by October 1, 1998. In June 1998, the Vice Chairman, Joint Chiefs of Staff, sent a message to the unified commands, Services, and Defense agencies. The message provided a synopsis of the operational evaluation plan, solicited unified command involvement in the Y2K process, and requested feedback on Y2K operational evaluation opportunities. The Y2K operational evaluation plan will encourage use of joint exercises, demonstrations, mission readiness assessments, tests, or other opportunities for evaluation of Y2K readiness. The goal of Y2K operational evaluations is to assure the warfighters that their key mission-critical systems will not fail due to Y2K perturbations, as isolated systems or as part of the interconnected systems environment in which warfighting and peacekeeping missions are conducted.

Performing command and joint exercises to test Y2K interoperability of system interdependencies and interfaces may not be possible in some instances if the Services and agencies have not made and implemented the necessary Y2K corrections to the required systems. In such cases, testing contingency plans in an operational environment would be necessary. Testing contingency plans will help SPACECOM assess its capability to continue operations if the systems fail because of Y2K problems.

## **Conclusion**

Although SPACECOM has made initial progress in resolving the Y2K problem, it must continue to address several critical issues to prevent critical system or program disruptions because of the Y2K problem. The SPACECOM must take a more aggressive approach with the Y2K issue to minimize disruption of operations because of Y2K problems. Unless SPACECOM, along with the Joint Staff, the Services, and the Defense agencies make further progress on mitigating Y2K risks, SPACECOM may be unable to fully execute its mission without undue disruption. Copies of this report are being provided to all unified commands to facilitate self reviews of Y2K efforts.

Inspector General, DoD, Report No. 98-129, "U.S. Special Operations Command Year 2000 Issues," May 8, 1998, and Inspector General, DoD, Report No. 98-173, "U.S. Central Command Year 2000 Issues," July 2, 1998, made recommendations to the Joint Staff that are also applicable to the U.S. Space Command.

## **Recommendations and Management Comments**

### **1. We recommend that the Commander in Chief, U.S. Space Command:**

#### **a. Develop a written U.S. Space Command year 2000 management plan that includes:**

(1) implementing guidance for the DoD Year 2000 Management Plan and a requirement to update the U.S. Space Command plan based on changes to the DoD Year 2000 Management Plan,

(2) a U.S. Space Command strategy for resolving year 2000 problems,

(3) the role of the Air Force Space Command in the management of the U.S. Space Command year 2000 program, and

(4) establishing year 2000 focal points within all the functional directorates and involving all functional directorates in the U.S. Space Command year 2000 program.

#### **b. Identify the year 2000 issue as a readiness issue and include functional directorate representatives in future warfighter year 2000 conferences hosted by the Joint Staff.**

#### **c. Develop a complete list of mission-critical systems that includes U.S. Space Command managed systems, U.S. Space Command supporting systems, and systems based on commercial off-the-shelf and Government off-the-shelf products.**

**d. Complete the identification of interfaces and prepare written interface agreements for mission-critical systems that U.S. Space Command manages.**

**e. Develop contingency plans for mission-critical systems that U.S. Space Command manages and develop operational contingency plans for mission areas.**

**f. Develop comprehensive and complete test plans to show how U.S. Space Command managed systems will be tested and deemed year 2000 compliant.**

**g. Coordinate year 2000 solutions and contingency plans with U.S. Space Command component commands.**

**h. Use selected command and joint exercises to test year 2000 scenarios and contingency plans in an operational environment when possible.**

**Management Comments.** The U.S. Space Command concurred with all of the recommendations, stating progress made and future intentions for each recommendation.

**2. We recommend that the Director, Joint Staff, include all functional directorates and component commands in the warfighter year 2000 conference hosted by the Joint Staff.**

**Management Comments.** The Joint Staff concurred with the recommendation and attempted to ensure broad representation at the August 1998 conference.

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## **Part II - Additional Information**

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## Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing the issue, see the Y2K web page on the IGnet at <<http://www.ignet.gov>>.

### Scope

We reviewed and evaluated the status of the progress of SPACECOM in resolving the Y2K computing issue. We evaluated the Y2K efforts of SPACECOM, compared with those efforts described in the DoD Management Plan issued by the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) in April 1997. We obtained documentation including the Intelligence System Y2K Transition Plan, August 29, 1997; the Naval Space Command Y2K Program Management Plan, March 11, 1998; and the Air Force Space Y2K Program Management Plan, November 18, 1996. We also visited the Army Space Forward Command. We used the information to assess efforts related to the multiple phases of managing the Y2K problem.

**DoD-Wide Corporate Level Government Performance and Results Act Goals.** In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

- **Objective:** Prepare now for an uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities. (DoD-3)

**DoD Functional Area Reform Goals.** Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals.

- **Information Technology Management Functional Area.**  
**Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. (ITM-1.2)
- **Information Technology Management Functional Area.**  
**Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate DoD information infrastructure. (ITM-2.2)

- **Information Technology Management Functional Area.**  
**Objective:** Provide services that satisfy customer information needs.  
**Goal:** Upgrade technology base. (ITM-2.3)

**General Accounting Office High-Risk Area.** The General Accounting Office has identified several high-risk areas in the DoD. This report provides coverage of the Information Management and Technology high-risk area.

## **Methodology**

**Audit Type, Dates, and Standards.** We performed this economy and efficiency audit at SPACECOM from February through April 1998 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer-processed data for this audit.

**Contacts During the Audit.** We visited or contacted individuals and organizations within DoD. Further details are available upon request.

**Management Control Program.** We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1997 Annual Statement of Assurance.

## **Summary of Prior Coverage**

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be accessed over the Internet at <<http://www.gao.gov>>. Inspector General, DoD, reports can be accessed over the Internet at <<http://www.dodig.osd.mil>>. The following Y2K reports have been issued on other unified commands.

Inspector General, DoD, Report No. 98-173, "U.S. Central Command Year 2000 Issues," July 2, 1998.

Inspector General, DoD, Report No. 98-129, "U.S. Special Operations Command Year 2000 Issues," May 8, 1998.

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## **Appendix B. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition and Technology  
Director, Defense Logistics Studies Information Exchange  
Under Secretary of Defense (Comptroller)  
Deputy Chief Financial Officer  
Deputy Comptroller (Program/Budget)  
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)  
Year 2000 Oversight and Contingency Planning Office  
Assistant Secretary of Defense (Public Affairs)

### **Joint Staff**

Director, Joint Staff

### **Department of the Army**

Assistant Secretary of the Army (Financial Management and Comptroller)  
Auditor General, Department of the Army  
Chief Information Officer, Army

### **Department of the Navy**

Assistant Secretary of the Navy (Financial Management and Comptroller)  
Auditor General, Department of the Navy  
Chief Information Officer, Navy

### **Department of the Air Force**

Assistant Secretary of the Air Force (Financial Management and Comptroller)  
Auditor General, Department of the Air Force  
Chief Information Officer, Air Force



## **Unified Commands**

Commander in Chief, U.S. European Command  
Commander in Chief, U.S. Pacific Command  
Commander in Chief, U.S. Atlantic Command  
Commander in Chief, U.S. Southern Command  
Commander in Chief, U.S. Central Command  
Commander in Chief, U.S. Space Command  
Commander in Chief, U.S. Special Operations Command  
Commander in Chief, U.S. Transportation Command  
Commander in Chief, U.S. Strategic Command

## **Other Defense Organizations**

Director, Defense Contract Audit Agency  
Director, Defense Information Systems Agency  
    Inspector General, Defense Information Systems Agency  
    Chief Information Officer, Defense Information Systems Agency  
    United Kingdom Liaison Officer, Defense Information Systems Agency  
Director, Defense Logistics Agency  
Director, National Security Agency  
    Inspector General, National Security Agency  
Inspector General, Defense Intelligence Agency

## **Non-Defense Federal Organizations and Individuals**

Chief Information Officer, General Services Administration  
Office of Management and Budget  
    Office of Information and Regulatory Affairs  
Technical Information Center, National Security and International Affairs Division,  
    General Accounting Office  
Director, Defense Information and Financial Management Systems, Accounting and  
    Information Management Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Special Committee on the Year 2000 Technology Problem  
Senate Committee on Appropriations  
Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Committee on Governmental Affairs  
House Committee on Appropriations  
House Subcommittee on National Security, Committee on Appropriations  
House Committee on Governmental Reform and Oversight

**Non-Defense Federal Organizations and Individuals (cont'd)**

House Subcommittee on Government Management, Information, and Technology,  
Committee on Government Reform and Oversight  
House Subcommittee on National Security, International Affairs, and Criminal  
Justice, Committee on Government Reform and Oversight  
House Committee on National Security

Chief, Review Services, Canadian Department of National Defence

## **Part III - Management Comments**

# U.S. Space Command Comments



## UNITED STATES SPACE COMMAND

08 JUL 1998

MEMORANDUM FOR DIRECTOR, ACQUISITION MANAGEMENT, OFFICE OF THE  
INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

FROM: DEPCINCSpace  
250 South Peterson Blvd, Ste 118  
Peterson AFB, CO 80914

SUBJECT: Draft Audit Report on US Space Command Year 2000 Issues (Project No.  
8AS-0006.02)

1. I have carefully reviewed your draft report. The attached comments coincide with each of your recommendations for corrective action.
2. USSPACE Command recognizes the importance of the Year 2000 issue as a matter of readiness. Our Y2K program is active and highly productive. To date, over 90% of our mission systems are meeting the milestones of the DoD Five-Phased Plan. The few mission systems not meeting current milestones are on a schedule to catch up by 31 December 1998. Mission systems not meeting the 31 December 1998 deadline have well substantiated justification and are scheduled to be compliant by mid-1999. This information is documented and maintained in the Air Force Automated Systems Inventory (AFASI).
3. Our robust Y2K program continues to progress. Your diligent and thorough efforts are helpful and much appreciated. We're acting on each and every recommendation to enhance our program. I'm very confident our mission capability will survive the millenium rollover.
4. Please direct questions to my POC, Maj Dan Mullen, N-SPJ60, DSN 692-4125.

A handwritten signature in black ink, appearing to read "L. G. BIEN".

L. G. BIEN  
Vice Admiral, U. S. Navy  
Deputy Commander in Chief

Attachment:  
Status of the US Space Command Year 2000 Program

**Status of the US Space Command Year 2000 Program**  
(as of 1 July 1998)

The following comments coincide directly with each DoDIG recommendation for corrective action.

1. "We [DoDIG] recommend that the Commander in Chief, U.S. Space Command:"

a. CONCUR. The Draft NORAD-USSPACECOM Year 2000 Action Plan is complete and currently under coordination. Expected completion date (ECD) is 31 Jul 98.

(1) CONCUR. The NORAD-USSPACECOM Year 2000 Action Plan implements DoD guidance and is required to be updated concurrently with the DoD Year 2000 Management Plan.

(2) CONCUR. The NORAD-USSPACECOM Year 2000 Action Plan contains strategy for resolving year 2000 problems.

(3) CONCUR. The NORAD-USSPACECOM Year 2000 Action Plan articulates the roles and responsibilities of HQ NORAD-USSPACECOM and all Space Service Components (Air Force Space Command (AFSPC), Naval Space Command (NAVSPACECOM), Army Space Command (ARSPACE) and Cheyenne Mountain Operations Center (CMOC)) and Regions (Canada NORAD Region (CANR), Alaska NORAD Region (ANR), and Continental NORAD Region (CONR)).

*NOTE: Roles and responsibilities under the NORAD-USSPACECOM umbrella are distinguished between Headquarters (HQ) NORAD-USSPACECOM, AFSPC, NAVSPACECOM, ARSPACE, CMOC, CANR, ANR, and CONR.*

*NORAD-USSPACECOM is the executive agent (EA) for six mission critical systems in the Intelligence Directorate (J2). These mission critical systems are managed under the HQ NORAD-USSPACECOM program and J6 reports status to JCS monthly. J2 also reports status via intelligence channels to ASD/CSI. Mission support systems and infrastructure for HQ NORAD-USSPACECOM are responsibilities of the host base and AFSPC; however, the NORAD-USSPACECOM Year 2000 POC is the focal point.*

*AFSPC, NAVSPACECOM, and ARSPACE are executive agents for the 254 mission systems in NORAD-USSPACECOM's seven mission areas and thousands of mission support and infrastructure systems. They dual report systems status to their respective Services and NORAD-USSPACECOM.*

(4) CONCUR. The NORAD-USSPACECOM Year 2000 Action Plan establishes and involves year 2000 focal points in all functional

## U.S. Space Command Comments

### Status of the US Space Command Year 2000 Program (as of 1 July 1998)

directorates as well as all Space Service Components and Regions.

- b. CONCUR. CINCNORAD-USSCINCSpace 122100 JUN 98, YEAR 2000 (Y2K) CHALLENGE, emphasizes Year 2000 as an operational issue that crosses all functional boundaries and a recommended high priority track on the scope of all Space Service Component and Region commanders. These points are also covered in the NORAD-USSPACECOM Year 2000 Action Plan (reference paragraph 1a above for ECD).
- c. CONCUR. NORAD-USSPACECOM has a list of all mission critical systems that also identifies corresponding executive agents (HQ NORAD-USSPACECOM, AFSPC, NAVSPACECOM, and ARSPACE). Space Service Components maintain lists for mission support systems and infrastructure and this information is available to USSPACECOM upon request. Still in progress is the identification of all mission support systems and infrastructure in HQ NORAD-USSPACECOM, CMOC, CANR, CONR, and ANR that are not covered by respective Force Provider Year 2000 Programs. ECD is 31 Aug 98.
- d. CONCUR. Interfaces have been identified for mission critical systems for which HQ NORAD-USSPACECOM serves as executive agent. Interface control documents (ICD) exist for these systems and are acceptable as written interface agreements per JCS guidance. The Space Service Components are executive agents for 254 mission critical systems. Most of these systems have interfaces identified and interface documentation developed. USSPACECOM is currently verifying an accurate count. ECD 10 Jul 98.
- e. CONCUR. Development of systems contingency plans and operational contingency plans are underway. Systems contingency plans exist for that 90% of Space Service Component mission critical systems that completed the Renovation Phase, 30 Jun 98. Remaining systems will have contingency plans completed in August, September, and November 1998. Systems contingency plans for HQ NORAD-USSPACECOM systems are in progress. ECD is 31 Jul 98. Operational contingency plans for all systems are in progress. ECD is 31 Dec 98.
- f. CONCUR. Test plans for HQ NORAD-USSPACECOM mission critical systems are in progress. ECD is 31 Jul 98. Test plans for Space Service Component mission systems are virtually complete. AFSPC is conducting an inventory of test plans. ECD is 31 Jul 98.
- g. CONCUR. USSPACECOM is coordinating Year 2000 solutions and contingency plans with Space Service Components. For example,

**Status of the US Space Command Year 2000 Program**

**(as of 1 July 1998)**

comprehensive and complete test plans developed for the 44 mission systems in the Integrated Tactical Warning and Attack Assessment (ITW/AA) mission area have experienced great success and were forwarded up-channel for consideration as a DoD template.

h. CONCUR. VCJCS 082056Z Jun 98, Year 2000 Challenge message provides a synopsis of the Joint Staff Year 2000 (Y2K) Operational Evaluation Plan, solicits combatant command involvement in the Y2K process, and requests feedback on Y2K operational evaluation opportunities. The USCINCSpace exercise program consists primarily of providing support during other CINC exercises. This provides USSPACECOM with the most realistic training environment possible. Space systems should be included in Y2K operational evaluations and USSPACECOM stands ready to support this endeavor. Suggested candidate exercises are: CJCS command post exercise (CPX) POSITIVE FORCE (PF) 99; USCINCPAC/CFC computer assisted exercise (CAX) ULCHI FOCUS LENS (UFL) 99, and USCINCSSTRAT/CINCNOBAD/USCINCSpace exercise GLOBAL GUARDIAN 00.

2. VCJCS 082056Z Jun 98, Year 2000 Challenge message, paragraph 5, invites CINCs to send functional representatives in addition to Y2K coordinators.

# Joint Staff Comments



THE JOINT STAFF  
WASHINGTON, DC


Reply ZIP Code:  
20318-0300

DJSM 802-98  
24 July 1998

## MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

Subject: Audit Report on US Space Command Year 2000 Issues (Project No. 8AS-006.02)

1. The Joint Staff endorses your suggestions to improve the Year 2000 posture of the US Space Command (USSPACECOM).<sup>1</sup> We are fully committed to ensuring the warfighting missions of the combatant commands will be conducted without Year 2000-related mission degradation.
2. Your draft audit report included findings for both the Joint Staff and USSPACECOM. The Joint Staff's management comments on the draft audit are described in Enclosure A. USSPACECOM's management comments are shown at Enclosure B. \*
3. The Joint Staff point of contact for Year 2000 audit actions is Lieutenant Colonel Lucinda Hackman, J6V, (703) 697-1207, DSN 227-1207, lucinda.hackman@js.pentagon.mil.

  
DENNIS C. BLAIR  
Vice Admiral, U.S. Navy  
Director, Joint Staff

### Enclosures

### Reference:

- 1 IGDOD memorandum, 10 June 1998, "Audit Report on U.S. Space Command Year 2000 Issues (Project No. 8AS-0006.02)"

\*Enclosure B not included because SPACECOM submitted comments separately.



**ENCLOSURE A**

**JOINT STAFF COMMENTS ON AUDIT REPORT ON US SPACE COMMAND  
YEAR 2000 ISSUES (PROJECT NO. 8AS-0006.02)**

**RECOMMENDATION 2:** That the Director, Joint Staff, include all functional directorates and component commands in the warfighter year 2000 conference hosted by the Joint Staff.

**JOINT STAFF COMMENT:** Concur. All functional directorates and component commands will be invited to the Joint Staff's August 1998 and subsequent year 2000 conferences.

**Enclosure A**

## **Audit Team Members**

This report was prepared by the Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD.

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